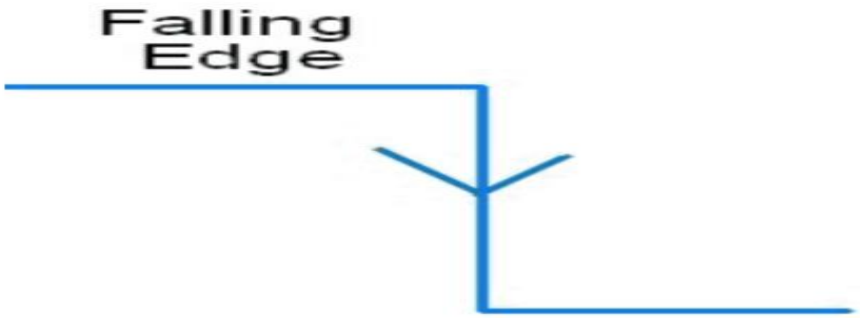
Embedded C Assignment:

(1) Write a C Macro **GET_BIT** to read certain bit in a register or variable. The Macro inputs are the register or variable and the bit number.

(2) Write a C Macro to calculate the sum of an array.

(3) Given an integer number we want to know the value of the 4^{th} least significant bit in num's binary representation, For example if num = 23 we first convert it to its binary representation (10111). When we count the bits from least to most significant, we see that the 4^{th}least significant bit is 0.

(4) Write a C function that counts number of falling edges (i.e change from high to low) that occurs on a digital input pin. You are required to complete the function **FallingEdgCounter()** which called periodically and have one input parameter that contain the last reading for the port pin (e.g. 0:Low 1:High) and returns accumulated number of falling edges since the first function call.



(5) Write a C function that counts number of rising edges(i.e change from low to high) that occurs on a digital input pin. You are required to complete the function **RisingEdgCounter()** which called periodically and have one input parameter that contain the last reading for the port pin (e.g. 0:Low 1:High) and returns accumulated number of rising edges since the first function call.

(6) Write a C function to perform a right circular shift for an unsigned 32 bits integer a given number of times and copy the output to third argument, and return 0 if OK and 0xFF if the number of shifts > 32 in this case copy input to output without doing any shifts

unsigned char RightCircularShift(unsigned int InputNumber, int NumberOfShifts, unsigned int * pOutput)

(7) Write a C function that clears a specified bit in a giver number (bit number starts from 0), and return the new value of the number. If not possible return the same number as it is.

Example:

Input Number = 3
Bit Position = 0
Result = 2

(8) Write a C function to reverse the binary of an 8-bits number. For example, if the input number is 10001101 the output number should be 10110001.

(9) Write a C function to convert 4-bytes integer from little endian to big endian and from big endian to little endian using bitwise operators.

(10) Write a C Macro to implement the same functionality mentioned in the previous question.

Thanks and Good Luck

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